Nuclear Interactions at Ultra-high Energy in Light of Recent Results from Auger

February 20-22, 2008   (Wednesday—Friday)

A Workshop at the Institute for Nuclear Theory, University of Washington, Seattle
http://www.int.washington.edu/

We envisage this primarily as a working meeting that emphasizes discussion with a limited number of short talks to introduce the issues. There are five half-day sessions and a concluding session to summarize. Listed times include discussion.

All talks will be held in room C520. Check-in will begin at 8:00 on Wednesday, in Room C411.

Wednesday, Feb 20
09.00 – 12.00    Session 1: (Chair, T. Gaisser) Introduction and overview.
  09:00-10.00     AGNs as particle accelerators – Peter Biermann
  10.00- 10.45    Propagation of cosmic rays over cosmic distances – Todor Stanev
  Break 10.45—11:15
  11:15- 11:45    Phenomenology of large air showers – Tom Gaisser
  11:45- 12:15    pp total cross section at LHC with TOTEM – Jim Whitmore

  Lunch: 12.15-13:45

13:45 – 17:45 Session 2: (Chair: R. Engel) Air shower measurements of UHECR
  13:45- 14.15    Auger fluorescence profiles and Xmax – Michael Unger
  14.15-14.45     Dependence of profile & Xmax on first interaction – Ralph Ulrich
  14:45-15.45     Auger muon excess
                  CIC method – Fabian Schmidt
                  Other signatures, global picture – Maximo Ave
  Break 15:45- 16.15
  16.15-16.40    HiRes showers with coincident muons in MIA – Pierre Sokolsky
  16:40-17:05    HiRes – Depth of maximum and composition – John Belz
  17.05- 17.50    KASCADE composition & comparison to models – Ralph Engel
Thursday, Feb 21

09.00 – 12.30 Session 3: (Chair: Mark Strikman) Hadronic interaction models confront reality (in EAS data)
9.00-9.30 Stability of muon number in EAS calculations – Serguei Ostaptchenko
9:30-10.15 Fragmentation & muon production in EAS – H.-J. Drescher
Break 10:15-10:45
10.45-11.45 Implications of the event generator EPOS
   For interpretation of EAS – Tanguy Pierog
   For RHIC – Klaus Werner
11:45-12:15 Percolation models – J. Dias de Deus

Lunch: 12:30—14.00

14:00 – 17:00 Session 4: (Chair: Larry McLerran) What can we learn from RHIC
14.00- 14:45 Fragmentation studies at colliders – Sebastian White
14.45 – 15:30 Patterns of fast parton propagation through high density gluon fields
   --Mark Strikman
Break: 15:30-16.00
16.00-17.00 Implications of parton density saturation for nucleon fragmentation
   sub-topic 1 – Jamal Jallilian-Marian
   sub-topic 2  – Anna Stasto
17:00 – 17:30 High pT muons in air showers – Spencer Klein

18:30 – 21.00 Dinner at Ivar’s seafood

Friday, Feb 22

09:00 – 12.00 Session 5: (Chair: Paolo Lipari)
9.00-9.45 Predictions of cosmic-ray event generators for LHC – Ralph Engel
9.45- 10.30 Summary comments including implications of hadronic interactions for event generators and interpretation of UHECR—Paolo Lipari

Break: 10:30 – 11:30

11:30 – 12.00 Discussion

Lunch: 12:00- 13.30

13.30 – 15.00 Roundtable discussion, conclusions, writing assignments